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10/602,476	06/24/2003	Nagesh R. Basavanhally	Basavanhally 31-3	2680

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EXAMINER

CHIEM, DINH D

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2883

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/602,476	Applicant(s) BASAVANHALLY ET AL.	
	Examiner ERIN D. CHIEM	Art Unit 2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-28 is/are rejected.
- 7) ☒ Claim(s) 13 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 13 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Since the sensors are mounted on the side of the fiber, as recited in claim 1, and the fiber is the optical communication conduit for the sensor, then the sensors **MUST** be optically coupled to the fiber. Therefore, the examiner considers claim 13 as failing to further limit the subject matter of claim 1.

Claim 28 are objected to under 37 CFR 1.75 as being a substantial duplicate of claim 27. Although claims 27 and 28 differs in the functional limitations of the third clause shown herein:

Claim 27...a second sensor optically coupled to the fiber, wherein, when interrogated with the light coupled into the fiber, the second sensor generates an optical response corresponding to a second value of the first physical parameter to provide a measure of the second value of the first physical parameter to provide a measure of the second value.

Claim 28...a second sensor optically coupled to the fiber, wherein, when interrogated with the light coupled into the fiber, the second sensor generates an optical response corresponding to a value of the second physical parameter different from the first physical parameter to provide a measure of said value.

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Firstly, both are independent claims having no antecedent basis to one another, thus the reference of the *second sensor, first physical parameter, second physical parameter, second value*, and *a value* within both claims must be considered independently and possibly are the same value. It is possible that "a second value of the first physical parameter" (claim 27) is the same "value of the second physical parameter" (claim 28) since claim 27 is silent to the "first physical parameter."

Secondly, the clauses recited above are merely functional limitations, which are not supported by any structure that would patentably differentiate the two claims. Then in such case, the structural limitations of the two claims are identical since claim 28 does not recite any structure which patentably distinguish claim 27 from performing the same function as claim 28.

When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: a light source, a receiver or detector, and a filter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1, 3, 6-7, 9-11, 15-17, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Lubbers et al. (US Patent 5,353,792). Lubbers discloses a sensing system comprising: a first sensor mounted onto a side of an optical fiber and optically coupled to said fiber (Fig. 8 element 3), wherein, when interrogated with light coupled into the fiber (Fig. 1), the first sensor generates an optical response corresponding to a first value of a first physical parameter to provide a measure of the first value; and a first optical filter inserted into the fiber (Fig. 8 element 20), wherein the first filter is adapted to direct light corresponding to the first sensor between the fiber and the first sensor (Col. 5, lines 13-24).

Claim 3, the filter 20 shown is aligned with the first sensor and oriented at about 45 degrees with respect to the longitudinal axis of the fiber.

Claim 6, a second sensor (4) optically coupled to the fiber. Regarding the limitation--*wherein the first filter is designed to be substantially transparent to light corresponding to the second sensor*—is not given patentable weight since this is a method of use of the device and since Lubbers teaches the structure of the first (3) and second (4) sensor having a first (20) and second (20) arranged correspondingly, the examiner considers the limitation of claim 4 is anticipated by Lubbers.

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Regarding claims 7-8, the functional limitations in the instant claim is not given patentable weight in a device claim wherein the function is not further limited by structure.

Claim 9 is anticipated by Lubbers since column 5, lines 13-24 teaches a specific parameter (e.g., single wavelength, hence monochromatic!) is returned to the control system (7).

Claim 10 is anticipated by Lubbers since system (7) shows a light source (10) and a detector (11).

Claim 11 is anticipated by Lubbers as shown in Fig. 1 and 8. The external tube (6) and the internal tube (2) supports the fiber (22) constitutes the housing of the catheter. Regarding the limitation wherein the first sensing parameter is pressure and the catheter is adapted to be used within a blood vessel is not given patentable weight since these are method of using the device since Lubbers anticipated the structures which are capable of performing these various functions.

Claims 15 and 16 is not given patentable weight since applicant is claiming the method of using the device; the examiner would like to note that an optical sensor can be tuned to any predetermined parameter such as pressure, temperature etc. Furthermore, multiple sensors would not be provided to measure the same parameter in a sensor such a catheter since the real estate of the sensor is too valuable for redundancy.

Claim 17 is rejected under 35 U.S.C. 102(b) as fully being anticipated by Fernald et al. (US 6,422,084 B1) Fernald fully anticipated claim 17 wherein fig. 8 shows and optical filter (gratings 12) and an optical device (optical transducer 20) mounted onto a side of the fiber and optically coupled to the fiber, wherein the filter is configured to direct light corresponding to the optical device between the fiber and the optical device.

Claim 17 is rejected under 35 U.S.C. 102(b) as fully being anticipated by Fleury. (US 4,618,211) Fleury teaches an optical fiber (12 shown in Fig. 5) with an optical filter (gratings 16) and an optical device (detector 51) mounted onto a side of the fiber and optically coupled to the fiber, wherein the filter is configured to direct light corresponding to the optical device between the fiber and the optical device.

Furthermore, with regarding to broad limitations of claim 17, the notoriously well known optical fiber having gratings thereon would meet the claim limitation in the instant case since the gratings is the optical filter and the cladding can be interpreted as an optical device mounted onto a side of the fiber wherein when the fiber is bent, leaky modes would be optically coupled from the core to the cladding.

Claims 17-18, 20-23, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Lubbers et al. (US Patent 5,353,792). Lubbers discloses a optical filter inserted into the fiber at a 45 degree angle (Fig. 8 element 20); and an optical device mounted onto a side of the fiber parallel to the longitudinal axis (Fig. 8 element 3), wherein the filter is configured to direct light corresponding to the optical device between the fiber and the optical device.

Regarding claims 20-23, these methods steps does not claim a method step that would be patentably different from the device claims, Lubbers prior art anticipated these broadly claimed method steps. The device in Lubbers prior art implied that an optical filter is inserted into the fiber, and the sensor is mounted onto a side of and column 5, lines 13-24 discloses that Lubbers

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configured the filter to direct light corresponding to the device between the fiber and the device since Lubbers device is configured "[f]or taking indicator readings several dichroitic mirrors 20 are provided which are mounted on the probe 19 one behind the other. In this way several indicators may be monitored simultaneously in one and the same position of the probe 19."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lubbers in view of Wlodarczyk et al. (US 5,280,786).

Lubbers discloses the invention of claim 1, however, Lubbers does not disclose a second sensor mounted at a terminus of the fiber. Wlodarczyk discloses a sensor system similar to Lubbers wherein Wlodarczyk is detecting more than one parameter in a catheter placed transcutaneously into a blood vessel. In Fig. 5, the catheter 11 is detecting the blood pressure and the oxygen saturation in the blood via the reflected signal from the filter 66. Furthermore, the pressure is detected via the optical transducer at the distal tip of the catheter (58). It would have been obvious to one having ordinary skill in the art to recognize the disclosure taught by Wlodarczyk would be modifiable in the art of Lubbers since both are from the same field of endeavors. **The motivation**, as taught by Wlodarczyk, for providing a pressure sensor at the time of the catheter is to avoid problems which were found in prior sensor wherein the optical controller is external to the sensing tool and the sensor which utilize fluid columns may create problems such as damping losses of the fluid column, limit high frequency response, mismatching between tubing and connectors, waveform distortion produced by bubbles trapped

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in fluid columns. By providing the pressure sensor at the tip of the catheter, these problems are resolved (Col. 1, lines 36-68).

Claims 12 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lubbers in view of Fernald et al. (US 2002/0194917 A1). Lubbers disclose the invention of claim 1 and 17, however, Lubbers does not disclose the limitations of claim 12. Fernald discloses a pressure sensor mounted on a side of the optical fiber wherein a first layer supported on a substrate having a portion adapted to move with respect to the substrate, a second layer supported on and fixed with respect to the substrate, wherein the first and second layers form a sealed chamber physically connected and optically connected wherein the fiber wherein the portion is moved, the reflectivity of the chamber changes, see Fig. 7, elements 98 and 100. This is known in the art as an etalon-based sensor wherein the flexing portion is also referred to as a diaphragm. It would have been obvious to one having ordinary skill in the art to recognize the disclosure by Fernald would have been modifiable in the art of Lubbers. **The motivation** for modifying the art of Lubbers as taught by Fernald the flexible diaphragm method of sensing pressure eliminates creep and hysteresis and increase the sensor long term stability (Para [0004] – [0008]).

Response to Arguments

Applicant's arguments with respect to claims 1, 3-28 have been considered but are moot in view of the new ground(s) of rejection.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIN D. CHIEM whose telephone number is (571)272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Erin D Chiem/
Examiner, Art Unit 2883

/Frank G Font/
Supervisory Patent Examiner, Art Unit 2883

FGF/edc